

In the Pipe

Association of Oil Pipe Lines
American Petroleum Institute

June 2007

Summer 2007 - www.inthepipe.org

VOLUME 1 ISSUE 2

HOME

News & Developments

Recent News

Industry Focus

Commentary

Company Spotlight

Pipeline Safety

Fuels/Biofuels

Technology/R&D

Policy & Regulatory Focus

Congress

Federal Agencies

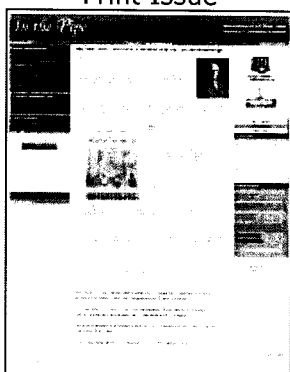
States

Data & Statistics

Pipe Line Statistics

Current Issue

Print Issue



Archived Issues

2006 Archives

Lessons on Damage Prevention from the PPTS

by Cheryl Trench

Damage caused by excavation or other mechanical impacts to a pipeline is a core focus of pipeline safety efforts. For liquids pipelines, these incidents, while few in number, account for some of the worst consequences. This article uses information developed in the industry's voluntary spill reporting system, the Pipeline Performance Tracking System (PPTS), to examine some of the characteristics of these incidents. PPTS, which first began collecting data in 1999, has allowed the industry to target its prevention strategies for these and other types of pipeline releases.

Third Party Damage in Hazardous Liquids Pipeline Releases

As shown in the table below, pipeline failures caused by damage from parties unrelated to the pipeline operator ("third party damage") accounted for only 6% of the incidents recorded in PPTS from 1999-2005, but they accounted for far greater shares of the high consequence incidents. The incidents tend to be larger, and they are disproportionately associated with death and injury. Since 90% of these incidents occur along the right-of-way, not in a fenced facility, they put the public and others not associated with the pipeline at risk.

Third Party Damage's Role in Hazardous Liquids Pipeline Incidents, 1999-2005

Third Party Damage Share of	
All incidents	6%
Total barrels released	27%
Fatalities	57%
Injuries	39%
Incidents involving a release of 50 barrels or more	23%
Incidents involving a release of 2,200 barrels or more (largest 2%)	29%

Who Does the Damage?

The industry has historically referred to these incidents as "third party damage," with the thought that persons not involved with operating or maintaining the pipeline -- farmers, homeowners, construction crews and excavators, people who in the course of their normal activities may come in contact with a pipeline -- were causing the damage.

When it developed the survey for PPTS, the oil pipeline industry also recognized that similar incidents were caused by operators ("first party") and their contractors ("second party") that damaged the pipeline by excavation, digging and other impacts. A release contractor damaging the pipeline is a data have confirmed since the outset

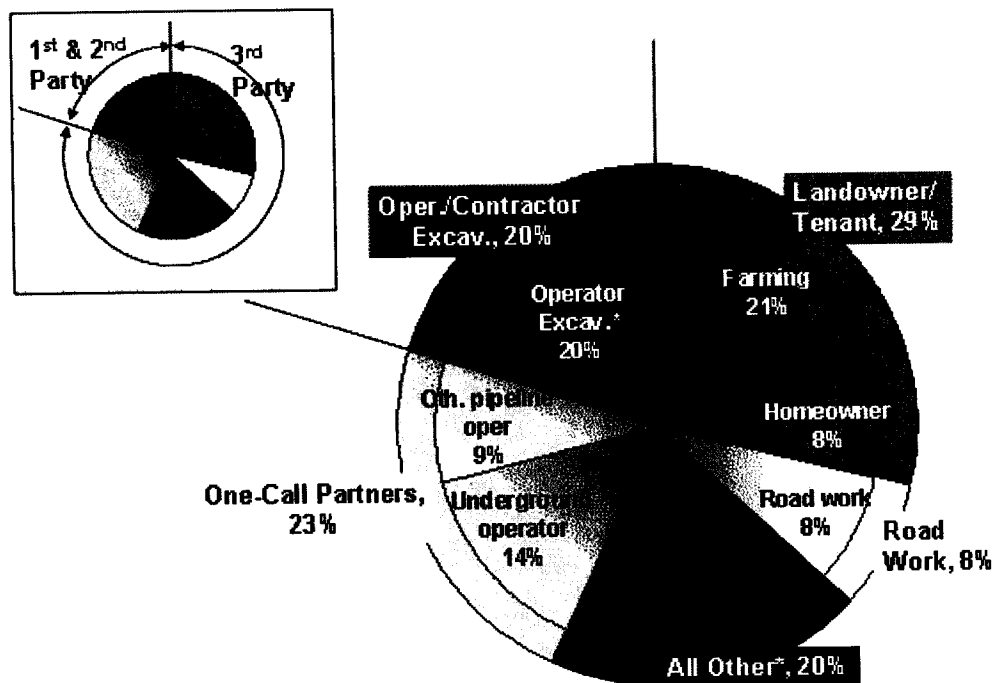
Energy & Telecommunications Committee Mtg.
September 16, 2011

Exhibit 4

incidents are an important part of the picture, as discussed below. Any prevention strategy will fail if it does not include the practices of the operator and its contractors as a target.

The shares of incidents caused by different excavation groups – in PPTS terms, “damaging parties” – presented new insight in targeting prevention strategies. For instance, farming activities cause more incidents than road work or other construction work. The recognition of the importance of farming activities led some operators to redirect prevention outreach especially in farming regions, holding county-by-county open meetings. The homeowner category is particularly important because the people doing the work may be less informed about the dangers of digging around a pipeline, or even to the presence of underground pipelines, than trained workers might be.

Who Does the Damage? Share of Incidents by Excavation Group, PPTS 1999-2005



*"All Other" is residential/commercial development (4%), waterway activity (2%) and rail (1%), and activities that did not fit into other categories (14%).

[1] These details are based on a subset of incidents on which extra detail is collected: those involving releases of 5 barrels or more, or ones involving death, injury, fire or explosion.

Because entities and individuals performing excavation tasks cannot know where underground facilities are located, one-call systems provide a central communication point for people who are going to excavate or dig to get information from the underground operators in the area about the exact location of the pipelines and other facilities. These state-by-state systems are paid for by the underground operators – liquids pipelines, gas transmission pipelines, gas distribution systems (mains and service lines), telecommunications and cable companies, etc. -- who are required by law to participate.

Prior to beginning work, the excavator calls the one-call center, which in turn informs the underground operators in the area of the excavation plan. Each operator evaluates the dig location and either determines that its facility is outside of the affected area, or marks the exact location of the line. Liquids operators customarily communicate directly with the excavator.

One of the biggest new insights from PPTS was the number of incidents caused by entities that are actually involved in one-call programs. In the graph above, "one-call partners" include the types of operators who pay for one-call systems, the very entities that receive requests and send crews to mark the line. As shown, these types of entities actually caused 23% of the excavation damage incidents over the 1999-2005 period. The graph further illustrates that almost 10% were caused by "other pipeline operators" – gas transmission and liquids pipeline operators. In fact, some of the liquids operators could be participants in PPTS who hit another PPTS operator in the shared right-of-way. The fact that these operators who have common experience and common information, who are each developing prevention strategies, are also hitting their neighbors' lines is one of many demonstrations that prevention is a complex issue.

Finally, the graph illustrates the role of operators and their contractors in these excavation-related incidents. In these, the PPTS operator reporting the incident or its contractor has damaged its own pipeline. They represent 20% of all excavation damage incidents – a number that PPTS participants are looking to reduce. As noted, PPTS records these incidents as "operator error." Again, the pipelines are actively engaged in fostering safety culture, and developing prevention strategies, so their involvement in these releases is a matter of concern to the industry.

The relatively frequent occurrence of these damage incidents caused by operators and their contractors has made them a high priority with the Pipeline Leadership. One element of prevention efforts is a new focus on managing contractors who are digging on the right-of-way, because PPTS shows that 70% of the operator/contractor incidents involve contractors. These figures lead us to question whether the incidents caused by other liquids pipeline and gas transmission operators also have high contractor involvement.

For the incidents involving third parties, PPTS also records whether the excavator notified one-call of the planned activity. Of significance is the fact that one-call was not used in more than 70% of the incidents. One-call partners used the one call system more frequently than other excavator types involved in releases, at nearly 60% of the incidents. In contrast, only 5% -- 2 out of 42 -- incidents involving landowners (farmers and homeowners) included a one-call notification. The data suggest that even where one-call is used, a misstep may cause a release, another confirmation of the complexity of damage prevention.

Use of One-Call by Damaging Party Category, 1999-2005

Damaging Party Type	Number			Share		
	No	Yes	Total	No	Yes	Total
Landowner	40	2	42	95%	5%	100%
One-Call Partner	13	19	32	41%	59%	100%
Road Constr/Maint	10	3	13	77%	23%	100%

All Other Parties	19	9	28	68%	32%	100%
Grand Total	82	33	115	71%	29%	100%

Landowner includes farming activities, homeowners and tenants, and those working for them; One-call Partner includes gas transmission, gas distribution, electric utility, telecommunications and cable; All Other Parties includes residential/commercial development, waterway activities, rail and "other."

PPTS also records information about depth of cover for incidents involving third party damage. Another insight gained from this information is that many of the incidents do not involve a shallowly buried pipe. For instance, in 37% of the incidents, more than 36 inches of soil covered the line. For incidents involving one-call partners, more than two-thirds occurred on lines that were buried deeper than 36 inches. Using this information, an operator should take more care to learn more about the excavation activity during the outreach after a one-call, making sure to be aware of whether a pipeline or telecommunication company was planning to use techniques such as drilling or boring, which tend to have a deeper penetration into the soil. In contrast, the landowner incidents tended to be shallower, with just 7% occurring at depths greater than 36 inches.

PPTS has allowed operators to hone their damage prevention activities with good results: incidents involving third party damage fell by 57% over the period 1999-2005. Compare this record with the much-touted decline in corrosion-related incidents, which fell by 63% -- only barely more rapidly -- over the same period. Even so, because the data demonstrate that these incidents have high consequences that often involve impacts to the public, communities and infrastructure, the industry has no choice but to continue to develop more effective strategies for prevention.

Cheryl Trench, President, Allegro Energy Consulting, consults with industry and government on a variety of issues relating to pipeline safety, including the Pipeline Performance Tracking System.

[PRINTER FRIENDLY VERSION]

LETTERS

There are no letters for this article. To post your own letter, click Post Letter.

[POST LETTER]

Created with [eNewsBuilder](#)